

Relationship between burnout levels of doctors and healthcare members working in intensive care units and sociodemographic variables*

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Cite this article: Gül AM, Yılmaz H, Kazbek BK, Ekmekçi P, Tüzüner F, Süer AH. Relationship between burnout levels of doctors and healthcare members working in intensive care units and sociodemographic variables. *Eur J Anesthesiol Intens Care*. 2025;2(3):83-92.

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Received: 20/05/2025

Accepted: 30/06/2025

Published: 06/08/2025

ABSTRACT

Aims: Intensive care units differ from other hospital departments in many ways, and due to their specific characteristics, employees are exposed to numerous challenging factors. This increases their stress levels and leads to burnout. In this study, we aimed to identify the causes of burnout syndrome among intensive care doctors and healthcare professionals and to offer possible solutions.

Methods: This research was designed as a cross-sectional study. A total of 243 anesthesiology and reanimation intensive care unit workers, the majority of whom were physicians, were included. All participants were evaluated with a two-part questionnaire method including sociodemographic, occupational, behavioral characteristics and the Maslach Burnout Inventory (MBI).

Results: The study population consisted of 141 physicians, 70 nurses, and 32 support staff. It was observed that the participants' levels of burnout were influenced by various factors. According to the average scores on the MBI subscales, participants experienced moderate burnout in emotional exhaustion (17.77 ± 6.49) and personal accomplishment (19.67 ± 6.09), and low burnout in depersonalization (5.83 ± 3.63).

Conclusion: The well-being of doctors and healthcare professionals can be improved by developing permanent strategies to prevent burnout, which is a manageable and avoidable syndrome. Preventing burnout not only enhances employee satisfaction but also helps improve the quality of healthcare services by enabling the effective and efficient use of human resources.

Keywords: Burnout syndrome, intensive care unit, healthcare, physicians, anesthesiology

* This study was presented as a poster at the 52nd National Congress of the Turkish Society of Anesthesiology and Reanimation, November 7-11, 2018/Antalya, Türkiye.

INTRODUCTION

Intensive care units (ICUs) differ from other hospital departments in many aspects. They are defined as care centers established to bring patients whose lives are under threat due to their pathologies back to a healthy life, providing uninterrupted service, having many life-saving technological tools and equipment, and where a multidisciplinary and team approach is mandatory.¹

Considering factors such as the need for employees to have emergency response skills, complex and difficult patient care, the need to meet all the needs of patients, a closed and noisy work environment, and the expectations of patients' relatives, intensive care workers are faced with more stress. ICU workers, whose stress load increases, become physically and mentally worn out and experience burnout.

The most accepted definition of the concept of burnout is the one made by Christina Maslach. According to Maslach,² burnout is considered a frequently seen syndrome with three sub-dimensions in working individuals: emotional exhaustion, depersonalization, and low sense of personal accomplishment. Emotional exhaustion refers to the decrease in the emotional and physical resources of the individual. It is also defined as tiredness, exhaustion, and powerlessness. Depersonalization is evaluated as negative behaviors and attitudes such as detachment, indifference, and disinterest towards the work done or service recipients. A low sense of personal accomplishment is the perception of the person as inadequate and unsuccessful in his/her job.^{3,4}

This study aims to determine the causes of burnout syndrome seen among intensive care doctors and healthcare professionals and to offer current solution suggestions.

METHODS

This cross-sectional study is based on a thesis conducted in 2017 with the approval of the Faculty of Medicine Ufuk University Non-interventional Clinical Researches Ethics Committee (Date: 26.05.2017, Decision No: 26052017-4). All participants were informed about the study and a consent form was obtained. All procedures were carried out in accordance with ethical rules and the principles of the Declaration of Helsinki.

A total of 255 ICU staff were contacted during the study, of whom twelve declined to participate for various reasons. Only staff working in anesthesiology and reanimation ICUs were included.

Data were collected using a questionnaire. To ensure participant confidentiality, no names were included on the data forms, and the collected data were not reviewed by anyone outside the research team. The data form consisted of two sections. The first section is designed to assess participants' sociodemographic, occupational, and behavioral characteristics. The second section of the form included the Maslach Burnout Inventory (MBI) to evaluate levels of burnout. The MBI consists of 22 Likert-type items with five response options and measures three subscales: emotional exhaustion, personal accomplishment, and depersonalization. Emotional exhaustion is measured with a total of 9 items. The score range is between 0-36. Desensitization is measured with a total of 5 items. The score range is between 0-20. Higher scores from these negatively worded items indicate greater emotional exhaustion and desensitization. The Sense of Personal Accomplishment is measured with a total of 8 items. The score range is between 0-32. The items contain positive expressions. Therefore, higher scores indicate greater personal accomplishment. We categorized the three sub-dimensions of the syndrome as low, medium and high. In the emotional exhaustion sub-dimension, scores between 0 and 16 were considered low, scores between 17 and 26 were considered medium and scores between 27 and 36 were considered high. In the depersonalization sub-dimension, scores between 0 and 6 were considered low, scores between 7 and 12 were considered medium and scores between 13 and 20 were considered high. The personal accomplishment sub-dimension was categorized as low between 0 and 10, medium between 11 and 21, and high

between 22 and 32. Low scores in the personal accomplishment sub-dimension were considered high burnout.

Statistical Analysis

The data analyses were conducted using SPSS version 15.0 (Statistical Package for the Social Sciences). To assess the internal consistency of the MBI subscales, Cronbach's alpha coefficients were calculated. According to George and Mallery,⁵ alpha values between 0.60 and 0.80 indicate acceptable reliability, while values between 0.80 and 1.00 indicate high reliability. The emotional exhaustion subscale (9 items) demonstrated high reliability ($\alpha=0.852$), the personal accomplishment subscale (8 items) also showed high reliability ($\alpha=0.828$), and the depersonalization subscale (5 items) exhibited acceptable reliability ($\alpha=0.673$).

Descriptive statistics, including mean, standard deviation, median, minimum, and maximum values, were used for variables measured on a five-point Likert scale. For categorical variables, frequencies, valid percentages, and cumulative percentages were reported. The chi-square test was used to compare categorical variables, while relationships between MBI subscales were examined using Spearman correlation analysis. All statistical analyses were conducted at a 95% confidence level with a significance threshold set at $p<0.05$.

An a priori power analysis was performed using G*power version 3.1⁶ to determine the minimum sample size required for chi-square tests of independence. The analysis assumed a small-to-medium effect size (Cohen's $w=0.25$), an alpha level of 0.05, and target power levels of 80% and 95%. The results indicated that a minimum of 152 participants would be required to achieve 80% power, and 247 participants for 95% power. With a total of 243 participants, the present study exceeded the requirement for 80% power and closely approached the 95% threshold, corresponding to an estimated achieved power of approximately 94.6%. This suggests that the sample size was adequate to detect meaningful associations and to minimize the risk of type II errors.

RESULTS

Of the 243 people who participated in the study, 141 were doctors, 70 were nurses, and 32 were support personnel. Frequencies and percentages regarding the sociodemographic, occupational, and behavioral characteristics of the participants are presented in detail in [Table 1](#).

When the participants of the study were considered in general, it was understood that individuals experienced a moderate level of burnout according to the mean scores of emotional exhaustion (17.77 ± 6.49) and personal accomplishment subscale (19.67 ± 6.09), and that individuals experienced a low level of burnout when compared to the depersonalization subscale (5.83 ± 3.63), as shown in [Table 2](#).

When analyzed by professional groups, the findings in [Table 3](#) revealed that participants experienced moderate levels of burnout based on the mean scores of the emotional exhaustion and personal accomplishment subscales, consistent with the overall trend. Physicians, in particular, demonstrated higher personal accomplishment scores compared to other professional groups. In contrast, all occupational categories exhibited low levels of burnout on the depersonalization subscale.

Table 1. Sociodemographic, occupational, and behavioral characteristics of intensive care unit professionals								
Parameters	Doctor (n:141)		Support staff (n:32)		Nurse (n:70)		Total (n:243)	
	n	%	n	%	n	%	n	%
Gender								
Male	55	39.0	23	71.9	17	24.3	95	39.1
Female	86	61.0	9	28.1	53	75.7	148	60.9
Age (years)								
<35	41	29.1	20	62.5	65	92.9	126	51.9
≥35	100	70.9	12	37.5	5	7.1	117	48.1
Marital status								
With a partner	100	70.9	21	65.6	23	32.9	144	59.3
Not with a partner	41	29.1	11	34.4	47	67.1	99	40.7
Having children								
Yes	89	63.1	21	65.6	14	20.0	124	51.0
No	52	36.9	11	34.4	56	80.0	119	49.0
Home sharing								
Family/friends	116	82.3	32	100	54	77.1	202	83.1
Living alone	25	17.7	-	-	16	22.9	41	16.9
Educational status								
Undergraduate	-	-	-	-	27	38.6	27	11.1
Postgraduate	141	100	-	-	-	-	141	58.0
High School	-	-	32	100.0	43	61.4	75	30.9
Dependent family member								
Yes	21	14.9	4	12.5	5	7.1	30	12.3
No	120	85.1	28	87.5	65	92.9	213	87.7
Chronic disease								
Yes	44	31.2	2	6.3	6	8.6	52	21.4
No	97	68.8	30	93.8	64	91.4	191	78.6
Smoking								
Yes	39	27.7	26	81.3	52	74.3	117	48.1
No	102	72.3	6	18.8	18	25.7	126	51.9
Alcohol								
Yes	15	10.6	4	12.5	10	14.3	29	11.9
No	66	46.8	28	87.5	45	64.3	139	57.2
Social drinker	60	42.6	-	-	15	21.4	75	30.9
Career choice								
Deliberate	101	71.6	8	25.0	46	65.7	155	63.8
Random	17	12.1	14	43.8	10	14.3	41	16.9
Other reasons	23	16.3	10	31.3	14	20.0	47	19.3
Satisfaction with the current work unit								
Yes	67	47.5	23	71.9	56	80.0	146	60.1
No	16	11.3	7	21.9	9	12.9	32	13.2
Partially	58	41.1	2	6.3	5	7.1	65	26.7
Experience (total)								
≤ 5 years	34	24.1	23	71.9	49	70	106	43.6
> 5 years	107	75.9	9	28.1	21	30	137	56.4
Experience (in ICU)								
≤ 5 years	78	55.3	28	87.5	60	85.7	166	68.3
> 5 years	63	44.7	4	12.5	10	14.3	77	31.6
Number of working hours per week								
45 hours or less	28	19.9	1	3.1	5	7.1	34	14.0
More than 45 hours	113	80.1	31	96.9	65	92.9	209	86.0
Table continues								

Table 1. Sociodemographic, occupational, and behavioral characteristics of intensive care unit professionals (Table continues)								
Number of shifts per month								
5 or fewer	79	56.0	3	9.4%	17	24.3	99	40.7
More than 5	62	44.0	29	90.6	53	75.7	144	59.3
Post-shift rest								
Yes	52	36.9	30	93.8	50	71.4	132	54.3
No	89	63.1	2	6.3	20	28.6	111	45.7
Sleep pattern								
Regular	39	27.7	9	28.1	13	18.6	61	25.1
Irregular	102	72.3	23	71.9	57	81.4	182	74.9
Difficulty commuting to work								
Sometimes	42	29.8	5	15.6	12	17.1	59	24.3
Yes	14	9.9	13	40.6	14	20.0	41	16.9
No	85	60.3	14	43.8	44	62.9	143	58.8
Income sufficiency								
Yes	89	63.1	8	25.0	28	40.0	125	51.4
No	52	36.9	24	75.0	42	60.0	118	48.6
Secondary employment								
Yes	19	13.5	3	9.4	5	7.1	27	11.1
No	122	86.5	29	90.6	65	92.9	216	88.9
Hobby								
Yes	94	66.7	14	43.8	54	77.1	162	66.7
No	47	33.3	18	56.3	16	22.9	81	33.3
Taking annual leave all at once								
Yes	32	22.7	1	3.1	24	34.3	57	23.5
No	109	77.3	31	96.9	46	65.7	186	76.5
Regular annual vacation								
Yes	87	61.7	6	18.8	30	42.9	123	50.6
No	54	38.3	26	81.3	40	57.1	120	49.4
Perceived suitability of profession								
Yes	112	79.4	17	53.1	60	85.7	189	77.8
No	29	20.6	15	46.9	10	14.3	54	22.2
Problems with teammates								
Yes	40	28.4	5	15.6	21	30.0	66	27.2
No	101	71.6	27	84.4	49	70.0	177	72.8
Affected by patients' critical condition								
Yes	83	58.9	24	75.0	31	44.3	138	56.8
No	58	41.1	8	25.0	39	55.7	105	43.2
Problem with patients' relatives								
Yes	72	51.1	14	43.8	23	32.9	109	44.9
No	69	48.9	18	56.3	47	67.1	134	55.1
Affected by physical conditions of the work environment								
Yes	126	89.4	26	81.3	63	90.0	215	88.5
No	15	10.6	6	18.8	7	10.0	28	11.5
ICU: Intensive care unit								

Table 2. Data of intensive care unit professionals regarding the scores they obtained from the MBI sub-dimensions					
	Mean	SD	Median	Min	Max
Emotional exhaustion	17.77	6.49	17.00	0	36
Depersonalization	5.83	3.63	5.00	0	20
Personal accomplishment	19.67	6.09	20.00	0	32
MBI: Maslach Burnout Inventory, SD: Standard deviation, Min: Minimum, Max: Maximum					

Table 3. Burnout subscale scores according to occupational groups

	Mean	SD	Median	Min	Max
Doctor					
Emotional exhaustion	18.12	7.34	18	0	36
Depersonalization	5.80	3.87	5	0	19
Personal accomplishment	21.03	5.99	21	6	32
Support staff					
Emotional exhaustion	18.00	3.57	18	8	26
Depersonalization	6.16	2.80	5	1	11
Personal accomplishment	18.00	4.57	19	8	25
Nurse					
Emotional exhaustion	16.97	5.66	17	2	33
Depersonalization	5.73	3.50	5	0	14
Personal accomplishment	17.71	6.23	17.5	5	31

SD: Standard deviation, Min: Minimum, Max: Maximum

As shown in **Table 4**, 20 participants (8.2%) scored high on the emotional exhaustion subscale, indicating high levels of burnout. Additionally, 10 participants (4.1%) demonstrated high burnout based on high scores in the depersonalization subscale, and 21 participants (8.6%) showed high burnout due to low scores on the personal accomplishment subscale.

Table 4. Categorization of participants based on their scores in the three subscales of the MBI

	Low		Medium		High		Total	
	n	%	n	%	n	%	n	%
Emotional exhaustion	103	49.4	120	49.4	20	8.2	243	100.0
Depersonalization	151	62.1	82	33.7	10	4.1	243	100.0
Personal accomplishment	21	8.6	124	51.0	98	40.3	243	100.0

MBI: Maslach Burnout Inventory

The relationship between the participants' MBI sub-dimensions, taking into account their occupational groups, is shown in **Table 5** with the results of Spearman correlation analysis. A statistically significant positive linear correlation was found between emotional exhaustion and depersonalization subscales, while personal accomplishment was negatively correlated with both emotional exhaustion and depersonalization ($p < 0.001$).

The data regarding the relationship between the subscales of the MBI and sociodemographic, occupational, and behavioral characteristics are presented in **Table 6**. Participants aged < 35 years exhibited significantly higher levels of depersonalization ($p = 0.002$) and reported lower levels of personal accomplishment ($p < 0.001$) compared to those aged > 35 years. Having children was associated with significantly greater personal accomplishment ($p < 0.001$). Marital status and living arrangements were also influential: being in a relationship ($p = 0.008$) and cohabitating ($p = 0.025$) were both associated with higher levels of personal accomplishment. Educational status was significantly related to emotional exhaustion ($p = 0.017$) and personal accomplishment ($p = 0.002$). Participants with only a high school education were less likely to report high

Table 5. Relationships between the subscales of the MBI according to occupational groups (Spearman correlation analysis)

		Emotional exhaustion	Depersonalization	Personal accomplishment
Total (n:243)				
Emotional exhaustion	p	1		
	r			
Depersonalization	p	0.603	1	
	r	< 0.001		
Personal accomplishment	p	-0.376	-0.366	1
	r	< 0.001	< 0.001	
Doctor (n:141)				
Emotional exhaustion	p	1		
	r			
Depersonalization	p	0.634	1	
	r	< 0.001		
Personal accomplishment	p	-0.417	-0.369	1
	r	< 0.001	< 0.001	
Support staff (n:32)				
Emotional exhaustion	p	1		
	r			
Depersonalization	p	0.400	1	
	r	0.023		
Personal accomplishment	p	-0.304	-0.061	1
	r	0.091	0.742	
Nurse (n:70)				
Emotional exhaustion	p	1		
	r			
Depersonalization	p	0.575	1	
	r	< 0.001		
Personal accomplishment	p	-0.426	-0.481	1
	r	< 0.001	< 0.001	

MBI: Maslach Burnout Inventory

personal accomplishment. The presence of a chronic disease was significantly related to increased depersonalization ($p = 0.001$), although no significant differences were observed in the other subdimensions. In terms of occupational factors, satisfaction with the current work unit was significantly associated with all three subdimensions of burnout ($p < 0.001$). Participants who reported having made their career choice willingly exhibited lower emotional exhaustion ($p = 0.023$) and higher personal accomplishment ($p = 0.048$). Having fewer monthly shifts (≤ 5) was linked to lower emotional exhaustion ($p = 0.008$) and greater personal accomplishment ($p = 0.002$). Additionally, shorter total work experience (≤ 5 years) was significantly associated with lower personal accomplishment ($p = 0.001$), as was shorter ICU experience ($p = 0.048$). Those who did not perceive their profession as suitable had significantly higher levels of depersonalization ($p = 0.002$) and lower personal accomplishment ($p < 0.001$). Moreover, income insufficiency was associated with higher emotional exhaustion ($p = 0.001$). Behavioral and lifestyle characteristics also demonstrated notable associations. Participants with regular sleep patterns reported significantly lower emotional exhaustion ($p < 0.001$) and higher personal accomplishment ($p < 0.001$). Smoking was significantly related to lower personal accomplishment ($p < 0.001$). Similarly, having a

hobby was associated with reduced emotional exhaustion ($p=0.001$) and enhanced personal accomplishment ($p=0.002$). Furthermore, not taking regular vacations was linked to lower personal accomplishment ($p=0.015$). Experiencing problems with patients' relatives was associated with higher emotional exhaustion ($p=0.015$), increased depersonalization ($p<0.001$), and decreased personal accomplishment ($p=0.014$). Being affected by the physical working environment was significantly related to lower personal accomplishment ($p=0.022$), while being emotionally impacted by patients' clinical conditions was associated with higher emotional exhaustion ($p=0.042$).

DISCUSSION

The results of our study examining the burnout levels and influencing factors of doctors, nurses, and support staff working in the ICU reveal that the participants experienced moderate levels of burnout in the emotional exhaustion and personal accomplishment sub-dimensions and low levels of burnout in the depersonalization sub-dimension.

We examined many factors that we thought could be related to burnout syndrome. When examining the relationship between burnout syndrome and gender, there are variable

Table 6. Relationship between MBI sub-dimensions and sociodemographic, occupational and behavioral characteristics

	Emotional exhaustion						Depersonalization						Personal accomplishment					
	Low		Medium		High		Low		Medium		High		Low		Medium		High	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Gender																		
Male	44	46.3	42	44.2	9	9.5	57	60.0	34	35.8	4	4.2	9	9.5	48	50.5	38	40.0
Female	59	39.9	78	52.7	11	7.4	94	63.5	48	32.4	6	4.1	12	8.1	76	51.4	60	40.5
X ²				1.706						0.312						0.137		
p value				0.426						0.856						0.934		
Age																		
<35	47	37.3	71	56.3	8	6.3	65	51.6	55	43.7	6	4.8	18	14.3	72	57.1	36	28.6
≥35	56	47.9	49	41.9	12	10.3	86	73.5	27	23.1	4	3.4	3	2.6	52	44.4	62	53.0
X ²				5.294						12.565						20.533		
p value				0.071						0.002						<0.001		
Partner																		
Yes	52	38.2	71	52.2	13	9.6	86	63.2	45	33.1	5	3.7	8	5.9	62	45.6	66	48.5
No	51	47.7	49	45.8	7	6.5	65	60.7	37	34.6	5	4.7	13	12.1	62	57.9	32	29.9
X ²				2.417						0.244						9.663		
p value				0.299						0.885						0.008		
Children																		
Yes	54	43.5	60	48.4	10	8.1	82	66.1	38	30.6	4	3.2	5	4.0	54	43.5	65	52.4
No	49	41.2	60	50.4	10	8.4	69	58.0	44	37.0	6	5.0	16	13.4	70	58.8	33	27.7
X ²				0.140						1.856						18.180		
p value				0.932						0.395						<0.001		
Home sharing																		
Yes	73	40.1	94	51.6	15	8.2	115	63.2	60	33.0	7	3.8	13	7.1	87	47.8	82	45.1
No	30	49.2	26	42.6	5	8.2	36	59.0	22	36.1	3	4.9	8	13.1	37	60.7	16	26.2
X ²				1.641						0.385						7.379		
p value				0.440						0.825						0.025		
Education																		
Ug	9	33.3	16	59.3	2	7.4	18	66.7	7	25.9	2	7.4	2	7.4	18	66.7	7	25.9
Pgd	60	42.6	63	44.7	18	12.8	89	63.1	44	31.2	8	5.7	7	5.0	64	45.4	70	49.6
High school	34	45.3	41	54.7	-	-	44	58.7	31	41.3	-	-	12	16.0	42	56.0	21	28.0
X ²				11.984						6.925						16.739		
p value				0.017						0.140						0.002		
Dependent family member																		
Yes	15	50.0	14	46.7	1	3.3	17	56.7	13	43.3	-	-	2	6.7	19	63.3	9	30.0
No	88	41.3	106	49.8	19	8.9	134	62.9	69	32.4	10	4.7	19	8.9	105	49.3	89	41.8
X ²				1.516						2.506						2.075		
p value				0.469						0.286						0.354		

Table continues

Table 6. Relationship between MBI sub-dimensions and sociodemographic, occupational and behavioral characteristics (Table continues)

C. disease																		
Yes	17	32.7	29	55.8	6	11.5	31	59.6	14	26.9	7	13.5	4	7.7	25	48.1	23	44.2
No	86	45.0	91	47.6	14	7.3	120	62.8	68	35.6	3	1.6	17	8.9	99	51.8	75	39.3
X ²				2.893						15.023						0.432		
p value				0.235						0.001						0.806		
Smoking																		
Yes	43	36.8	66	56.4	8	6.8	68	58.1	45	38.5	4	3.4	17	14.5	70	59.8	30	25.6
No	60	47.6	54	42.9	12	9.5	83	65.9	37	29.4	6	4.8	4	3.2	54	42.9	68	54.0
X ²				4.479						2.340						24.547		
p value				0.107						0.310						<0.001		
Alcohol																		
Yes	10	34.5	13	44.8	6	20.7	15	51.7	10	34.5	4	13.8	6	20.7	15	51.7	8	27.6
No	58	41.7	74	53.2	7	5.0	88	63.3	48	34.5	3	2.2	10	7.2	73	52.5	56	40.3
Social drinker	35	46.7	33	44.0	7	9.3	48	64.0	24	32.0	3	4.0	5	6.7	36	48.0	34	45.3
X ²				9.050						8.573						7.378		
p value				0.060						0.073						0.117		
Career choice																		
Deliberate	78	50.3	65	41.9	12	7.7	103	66.5	46	29.7	6	3.9	8	5.2	80	51.6	67	43.2
Random	12	29.3	25	61.0	4	9.8	21	51.2	18	43.9	2	4.9	4	9.8	21	51.2	16	39.0
Other reasons	13	27.7	30	63.8	4	8.5	27	57.4	18	38.3	2	4.3	9	19.1	23	48.9	15	31.9
X ²				11.381						3.802						9.452		
p value				0.023						0.433						0.048		
Unit satisfaction																		
Yes	80	54.8	61	41.8	5	3.4	108	74.0	35	24.0	3	2.1	5	3.4	71	48.6	70	47.9
No	3	9.4	20	62.5	9	28.1	10	31.3	19	59.4	3	9.4	8	25.0	20	62.5	4	12.5
Partially	20	30.8	39	60.0	6	9.2	33	50.8	28	43.1	4	6.2	8	12.3	33	50.8	24	36.9
X ²				39.471						25.908						24.940		
p value				<0.001						<0.001						<0.001		
Exp. (total)																		
≤5 years	42	39.6	59	55.7	5	4.7	60	56.6	43	40.6	3	2.8	15	14.2	61	57.5	30	28.3
>5 years	61	44.5	61	44.5	15	10.9	91	66.4	39	28.5	7	5.1	6	4.4	63	46.0	68	49.6
X ²				4.659						4.274						14.912		
p value				0.097						0.118						0.001		
Exp. (ICU)																		
≤5 years	68	41.0	87	52.4	11	6.6	102	61.4	59	35.5	5	3.0	19	11.4	85	51.2	62	37.3
>5 years	35	45.5	33	42.9	9	11.7	49	63.6	23	29.9	5	6.5	2	2.6	39	50.6	36	46.8
X ²				2.860						2.091						5.922		
p value				0.239						0.351						0.048		
Work hrs/week																		
≤45 hours	18	52.9	13	38.2	3	8.8	22	64.7	9	26.5	3	8.8	2	5.9	16	47.1	16	47.1
>45 hours	85	40.7	107	51.2	17	8.1	129	61.7	73	34.9	7	3.3	19	9.1	108	51.7	82	39.2
X ²				2.051						2.791						0.914		
p value				0.359						0.248						0.633		
Monthly shifts																		
≤5	52	52.5	37	37.4	10	10.1	66	66.7	29	29.3	4	4.0	4	4.0	43	43.4	52	52.5
>5	51	35.4	83	57.6	10	6.9	85	59.0	53	36.8	6	4.2	17	11.8	81	56.3	46	31.9
X ²				9.640						1.534						12.143		
p value				0.008						0.464						0.002		
P. shift rest																		
Yes	50	37.9	74	56.1	8	6.1	76	57.6	51	38.6	5	3.8	14	10.6	69	52.3	49	37.1
No	53	47.7	46	41.4	12	10.8	75	67.6	31	27.9	5	4.5	7	6.3	55	49.5	49	44.1
X ²				5.648						3.093						2.115		
p value				0.059						0.213						0.347		
Sleeping																		
Regular	43	70.5	17	27.9	1	1.6	45	73.8	14	23.0	2	3.3	1	1.6	22	36.1	38	62.3
Irregular	60	33.0	103	56.6	19	10.4	106	58.2	68	37.4	8	4.4	20	11.0	102	56.0	60	33.0
X ²				27.110						4.724						17.939		
Table continues																		

Table 6. Relationship between MBI sub-dimensions and sociodemographic, occupational and behavioral characteristics (Table continues)																		
p value		<0.001							0.094							<0.001		
Commute difficulty																		
Sometimes	18	30.5	35	59.3	6	10.2	44	74.6	11	18.6	4	6.8	4	6.8	27	45.8	28	47.5
Yes	16	39.0	22	53.7	3	7.3	24	58.5	16	39.0	1	2.4	4	9.8	25	61.0	12	29.3
No	69	48.3	63	44.1	11	7.7	83	58.0	55	38.5	5	3.5	13	9.1	72	50.3	58	40.6
X ²		5.749							8.640							3.447		
p value		0.219							0.071							0.486		
In. sufficiency																		
Yes	67	53.6	49	39.2	9	7.2	82	65.6	39	31.2	4	3.2	8	6.4	62	49.6	55	44.0
No	36	30.5	71	60.2	11	9.3	69	58.5	43	36.4	6	5.1	13	11.0	62	52.5	43	36.4
X ²		13.373							1.514							2.460		
p value		0.001							0.469							0.292		
Second job																		
Yes	13	48.1	12	44.4	2	7.4	15	55.6	9	33.3	3	11.1	2	7.4	12	44.4	13	48.1
No	90	41.7	108	50.0	18	8.3	136	63.0	73	33.8	7	3.2	19	8.8	112	51.9	85	39.4
X ²		0.413							3.826							0.772		
p value		0.813							0.148							0.680		
Hobby																		
Yes	81	50.0	72	44.4	9	5.6	105	64.8	51	31.5	6	3.7	13	8.0	71	43.8	78	48.1
No	22	27.2	48	59.3	11	13.6	46	56.8	31	38.3	4	4.9	8	9.9	53	65.4	20	24.7
X ²		13.271							1.497							12.521		
p value		0.001							0.473							0.002		
All-at-once leave																		
Yes	32	56.1	21	36.8	4	7.0	40	70.2	17	29.8	-	-	7	12.3	28	49.1	22	38.6
No	71	38.2	99	53.2	16	8.6	111	59.7	65	34.9	10	5.4	14	7.5	96	51.6	76	40.9
X ²		5.828							4.177							1.249		
p value		0.054							0.124							0.535		
Reg. vacation																		
Yes	60	48.8	55	44.7	8	6.5	79	64.2	39	31.7	5	4.1	7	5.7	56	45.5	60	48.8
No	43	35.8	65	54.2	12	10.0	72	60.0	43	35.8	5	4.2	14	11.7	68	56.7	38	31.7
X ²		4.403							0.483							8.398		
p value		0.111							0.786							0.015		
Prof. suitability																		
Yes	96	50.8	82	43.4	11	5.8	124	65.6	59	31.2	6	3.2	12	6.3	91	48.1	86	45.5
No	7	13.0	38	70.4	9	16.7	27	50.0	23	42.6	4	7.4	9	16.7	33	61.1	12	22.2
X ²		5.086							12.201							24.320		
p value		0.079							0.002							<0.001		
Teammate problems																		
Yes	23	34.3	36	53.7	8	11.9	31	46.3	31	46.3	5	7.5	8	11.9	38	56.7	21	31.3
No	80	45.5	84	47.7	12	6.8	120	68.2	51	29.0	5	2.8	13	7.4	86	48.9	77	43.8
X ²		3.318							10.568							3.603		
p value		0.190							0.055							0.165		
Aff. of pt. cond.																		
Yes	50	36.2	73	52.9	15	10.9	82	59.4	50	36.2	6	4.3	8	5.8	73	52.9	57	41.3
No	53	50.5	47	44.8	5	4.8	69	65.7	32	30.5	4	3.8	13	12.4	51	48.6	41	39.0
X ²		6.356							1.008							3.285		
p value		0.042							0.604							0.193		
Prob. w/ pt. relatives																		
Yes	41	37.6	53	48.6	15	13.8	56	51.4	43	39.4	10	9.2	12	11.0	64	58.7	33	30.3
No	62	46.3	67	50.0	5	3.7	95	70.9	39	29.1	-	-	9	6.7	60	44.8	65	48.5
X ²		8.432							17.885							8.525		
p value		0.015							<0.001							0.014		
Aff. by phy. cond. work																		
Yes	86	40.0	109	50.7	20	9.3	132	61.4	73	34.0	10	4.7	20	9.3	115	53.5	80	37.2
No	17	60.7	11	39.3	-	-	19	67.9	9	32.1	-	-	1	3.6	9	32.1	18	64.3
X ²		5.766							1.493							7.657		
p value		0.056							0.474							0.022		

Ug: Undergraduate, Pgd: Postgraduate. C.disease: Chronic disease, Exp: Experience, ICU: Intensive care unit, Hrs: Hours, Pshift: Post shift, In.sufficiency: Income sufficiency, All-at-once leave: Taking annual leave all at once, Reg. vacation: Regular vacation, Prof. suitability: Perceived suitability of profession, Aff. of pt. cond: Affected by patients' critical condition, Prob. w/ Pt. relatives: Problem with patients relatives, Aff. by phy. cond. Work: Affected by physical conditions of the work environment

statements in the literature. While Soler et al.⁷ found that burnout is more common among men in their study, there are studies^{8,9} reporting that women experience more burnout than men.

In our study, no significant relationship was found between burnout subdimensions and gender. There are many articles from which we can conclude that, in general, younger people are more prone to burnout.¹⁰⁻¹² In our study, it is seen that there is more burnout in the depersonalization and personal accomplishment subscales under the age of 35. The reasons for this situation can be listed as young people's inability to cope with work stress, being under more workload, and the extra pressure on them due to lack of experience.

Living alone has many negative effects, both psychologically and physically. While the risk of depression increases in those living alone, cardiovascular disease and gastrointestinal problems can also be seen.¹³ Although being married or having a partner brings extra responsibilities, it protects a person from loneliness and social isolation, and they can cope with work stress with the support they receive from their spouse during difficult times. Similarly, although having a child is stressful, it can be said that the important role of the parent in the family protects against burnout.¹⁴ Like our study, Yao et al.¹⁵ found in a study among doctors that married people are less prone to burnout, while Woodside et al.¹⁶ revealed that those who have children experience lower levels of burnout in the burnout sub-dimensions.

There is no clear relationship between education level and burnout levels. Contrary to studies indicating that higher levels of burnout occur as the level of education increases, there are also studies reporting higher levels of burnout at lower levels of education.¹⁷ Our study also found that higher levels of emotional exhaustion occur at higher levels of education, while burnout occurs in the personal accomplishment sub-dimension at lower levels of education.

The presence of physical or mental illnesses and poor health in general can be considered among the causes of burnout. While a study including 2075 Canadian workers found a relationship between the presence of chronic illness and emotional exhaustion, our study found that intensive care workers with chronic illnesses experienced more burnout in the depersonalization sub-dimension.¹⁸ A comprehensive systematic review analyzing various factors associated with parental burnout found that having dependents—particularly children with special needs—significantly increases the risk of burnout.¹⁹ The persistent experience of such adverse conditions in an individual's life may generate significant psychological stress and, over time, jeopardize their emotional resilience. Chronic stress of this nature can also contribute to the development of long-term affective disorders. In our study, although the presence of dependents—an element potentially contributing to burnout—was examined as a possible variable, we did not observe a statistically significant association with burnout levels. This finding may reflect the complexity and multifactorial nature of burnout, suggesting that additional mediating variables, such as the intensity of caregiving responsibilities, perceived social support, or coping mechanisms, may play a more critical role in shaping burnout outcomes.

When we examine the literature, there is growing evidence that both smoking and alcohol consumption are associated with an increased risk of burnout. A study conducted among healthcare professionals in Ethiopia²⁰ reported that individuals with alcohol dependence had more than six times higher odds of experiencing burnout compared to those without dependence. Similarly, a cross-sectional study among medical students in Serbia demonstrated that those who consumed alcohol one to two times per week had a significantly higher risk of burnout. The same study also found a significant association between smoking and increased levels of burnout, suggesting that substance use may be a maladaptive coping mechanism in response to academic or occupational stress.²¹ In our study, we observed a statistically significant relationship between smoking and burnout, particularly in the personal accomplishment sub-dimension. This finding supports the view that individuals may resort to smoking as a way to manage stress in demanding work environments; however, this behavior may paradoxically be linked to a diminished sense of professional achievement. On the other hand, despite the associations reported in the literature, we did not identify a statistically significant relationship between alcohol consumption and burnout levels in our study. This discrepancy may be attributed to factors such as underreporting due to social desirability bias, cultural stigmatization of alcohol use, or the relatively low frequency and quantity of alcohol consumption among participants.

Career choice can be identified as a critical determinant of long-term professional satisfaction and psychological well-being. Existing evidence suggests that individuals who do not choose their profession autonomously or who later experience regret regarding their career decisions are more vulnerable to burnout. Tian et al.²² found a significant association between career choice regret and increased levels of burnout among Chinese neurology postgraduates, indicating that a lack of alignment between personal values and professional demands may exacerbate emotional exhaustion and reduce perceived accomplishment. Similarly, Lu et al.²³ in a study of emergency medicine residents in the United States, reported that career choice regret was strongly linked to higher rates of burnout, particularly in environments where workplace mistreatment and systemic stressors were prevalent. These findings suggest that the psychological impact of pursuing a career misaligned with one's intrinsic interests or expectations can accumulate over time, leading to disengagement and emotional fatigue. Consistent with these observations, our study demonstrated that participants who reported not having voluntarily chosen their profession experienced significantly greater burnout, specifically in the sub-dimensions of emotional exhaustion and reduced personal accomplishment. This supports the idea that not having a say in one's career choice can reduce job satisfaction and increase the risk of burnout.

Satisfaction with the current work environment may be shown to be a protective factor against burnout. Studies have shown that perceived organizational support, effective teamwork, and high-quality leadership within one's work unit significantly affect levels of emotional exhaustion, depersonalization, and personal accomplishment.²⁴ Our finding that satisfaction with the current work unit was significantly associated with all three subscales of burnout

is consistent with this evidence. It suggests that a supportive and functional unit structure may buffer the psychological demands of high-stress clinical environments and promote greater professional engagement and well-being.

It is challenging to draw a definitive conclusion regarding the relationship between the length of professional experience and burnout. On the one hand, individuals with shorter durations of service may be more susceptible to burnout due to limited experience in managing complex clinical situations, lack of professional autonomy, and insufficient acquisition of status-related rewards that contribute to job satisfaction. On the other hand, while longer professional tenure may be associated with greater clinical maturity and coping capacity, it has also been suggested that prolonged exposure to high-intensity work environments may lead to increased emotional detachment and burnout over time.^{3,25} In our study, we found that intensive care workers with five years or less of professional experience reported significantly higher levels of burnout in the personal accomplishment sub-dimension, which may reflect the challenges faced by less experienced staff in developing a sense of efficacy and fulfillment in high-demand settings.

Lower monthly shift frequency (≤ 5) was significantly associated with decreased emotional exhaustion and increased personal accomplishment in our study. This finding aligns with previous research highlighting the detrimental impact of excessive workload and prolonged work hours on burnout, particularly in high-intensity clinical settings such as ICUs.^{1,2} It has been well-documented that frequent night or weekend shifts may disrupt circadian rhythms and reduce opportunities for recovery, thereby increasing vulnerability to emotional fatigue and professional inefficacy.^{26,27} Similarly, cross-sectional studies^{3,25} conducted among ICU professionals have consistently identified high shift burden as a major risk factor for burnout. Our findings support the notion that reducing shift load may serve as an effective institutional strategy to mitigate burnout risk and promote a healthier, more sustainable work environment for critical care staff.

Sleep disturbances have been identified in the literature as both a potential antecedent and consequence of burnout syndrome. A recent study demonstrated a significant association between poor sleep quality and increased levels of burnout, highlighting the bidirectional nature of this relationship.²⁸ In line with this finding, our study revealed that intensive care workers who reported insufficient and poor-quality sleep exhibited significantly higher levels of burnout in the personal accomplishment subdimension. This observation supports the hypothesis that inadequate restorative sleep may impair emotional regulation and diminish an individual's sense of professional efficacy, thereby exacerbating vulnerability to burnout, particularly in high-demand healthcare environments.

In our study, income insufficiency was associated with increased emotional exhaustion, while the absence of regular vacations and lack of engagement in hobbies were linked to lower levels of personal accomplishment. These findings align with previous research emphasizing that financial insecurity, inadequate recovery time, and the absence of fulfilling

non-work activities contribute significantly to burnout.^{2,29} Among intensive care professionals, the opportunity to take regular vacations has been shown to support both physical and emotional restoration, thereby reducing burnout risk.²⁵ Furthermore, participants who perceived a poor fit between themselves and their profession reported greater depersonalization and diminished personal accomplishment, echoing earlier studies that identified perceived professional suitability as a key protective factor against burnout.^{8,17} These results underscore the importance of addressing both organizational and individual-level determinants when developing strategies to mitigate burnout in high-intensity clinical environments.

In our study, several psychosocial and environmental stressors were found to be significantly associated with burnout among intensive care professionals. Experiencing difficulties with patients' relatives was associated with increased emotional exhaustion, higher depersonalization, and reduced personal accomplishment, while being emotionally affected by patients' poor clinical conditions was also linked to higher emotional exhaustion. Additionally, perceived adverse physical working conditions were related to lower personal accomplishment. These findings are in line with previous studies indicating that frequent exposure to suffering and end-of-life care in ICUs can intensify emotional fatigue and moral distress.^{26,27} Moreover, consistent with the literature, our results demonstrated that interpersonal conflicts, particularly those involving coworkers, were associated with greater burnout in the domains of depersonalization and diminished personal accomplishment, underscoring the importance of cohesive team dynamics and supportive work culture.^{2,3} These results highlight the multifactorial nature of burnout in critical care settings and emphasize the need for both structural improvements in work environments and the promotion of interpersonal support systems among healthcare teams.

Limitations

This study has some limitations. Being cross-sectional in nature, it only reflects associations at a specific point in time and does not allow for causal interpretations. The use of self-reported questionnaires may have introduced recall or social desirability bias. The sample was limited to third-level anesthesiology and reanimation ICUs, which may restrict the generalizability of the findings to other departments or healthcare settings. In addition, the burnout assessment was based on a validated scale but not on clinical diagnosis. Future research with longitudinal designs, broader ICU populations, and objective clinical evaluations would help to better understand the causes and consequences of burnout.

CONCLUSION

Burnout is a syndrome that is frequently seen in occupational groups that interact with people one on one, but can actually be prevented. Due to the specific characteristics of ICU, employees may encounter this syndrome.

The level of well-being of doctors and healthcare professionals can be increased by determining and analyzing the factors related to the level of burnout, which is affected by many

factors, and by developing permanent solution strategies for the problems. While employee satisfaction can be ensured by preventing burnout, it is also possible to increase the quality of the service provided by using human resources efficiently and effectively.

ETHICAL DECLARATIONS

Ethics Committee Approval

This cross-sectional study is based on a thesis conducted in 2017 with the approval of the Faculty of Medicine Ufuk University Non-interventional Clinical Researches Ethics Committee (Date: 26.05.2017, Decision No: 26052017-4).

Informed Consent

All patients signed and free and informed consent form.

Referee Evaluation Process

Externally peer-reviewed.

Conflict of Interest Statement

The authors have no conflicts of interest to declare.

Financial Disclosure

The authors declared that this study has received no financial support.

Author Contributions

All of the authors declare that they have all participated in the design, execution, and analysis of the paper, and that they have approved the final version.

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